

# AFV Series

RoHS Compliant CE



Output Power  
**10kVA~2000kVA**

## Interfaces

Standard

RS-232

RS-485

Option

GPIO

Ethernet

## Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Motor & Compressor
- IT / SMT Production Line
- Renewable Energy
- Electric Vehicles
- Transportation

## AFV Series

# High Power Programmable AC Power Source

Preen's AFV series is a programmable AC power source that can be remotely controlled and integrated with other systems for automatic testing. AFV series provides precise output voltage and frequency which could reach various types of industrial requirements. For the industrial users, such as home appliances, electrical and electronic, medical equipment and lighting, they are able to quickly and accurately simulate standard or abnormal power status via programmable function.

AFV builds-in standard programmable features, such as STEP and GRADUAL features, which are ideal for laboratories, certification and R&D institution's compliance test.

The user friendly touch screen supports user to operate AFV series intuitive and easily, and the user can remote control the unit via the standard RS-485 or RS232 (Optional for Ethernet, GPIO) interface. The AC source is coupled with output voltage range of 0~300V and output frequency of standard 45~65Hz or optional 45~500Hz. Moreover, the AFV series provides complete product protection, such as OVP, UVP, OCP, OPP, OTP and short circuit protection.

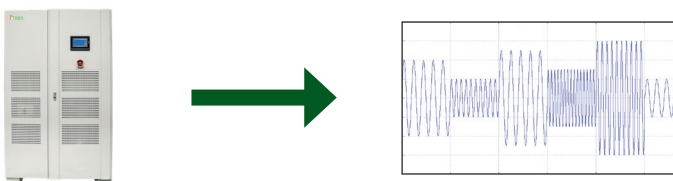
- CE & RoHS certificated.
- Modularized inverter which is compact, smaller, high power density and easy to maintain.
- 7-inch touch screen which can display the phase voltage, current, frequency, active/apparent power, power factor and test information.
- Ability to simulate abnormal power status: STEP and GRADUAL change modes allow users to set sequences of start/end voltage, frequency and running time with ease.
- Comprehensive protections which include output undervoltage / overvoltage, overcurrent, overload, input undervoltage / overvoltage, overheat and other more than twenty fault conditions.
- Three-phase voltage independently adjustable function: each phase voltage can be adjusted independently; therefore AFV can power more than one single-phase loads.
- Phase angle adjustment function: can adjust the phase angle between each phase (for three phase system).

### User-friendly Touch Screen and Remote Control



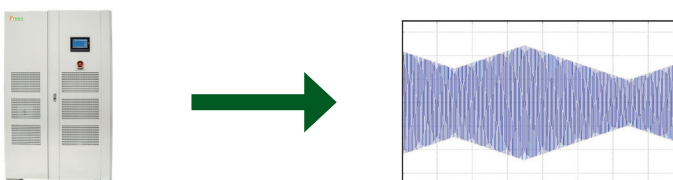
AFV with 7-inch touch screen of intuitive operation, easy to operate, quick setting, easy to use. Through the remote control interface (RS-485 / RS-232 / GPIB / Ethernet), users can set the desired output parameters and monitor the output value.

### STEP Mode



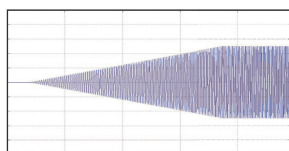
AFV series has the STEP change mode which provides up to 24 sequences and up to 255 cycles. The output voltage, frequency, and running time in each sequence can be set on the touch screen. These functions are widely used in the performance test of electric motor or home appliance load.

### GRADUAL Mode

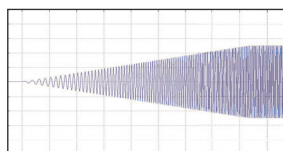


AFV series has the GRADUAL change mode which provides up to 12 sequences and up to 255 cycles. Through this feature, users are allowed to set the product output, such as start/end output voltage, start/end output frequency and dwell time of performing the GRADUAL feature in each of the adjustable sets, and then the product output will change according to the setting slew rate.

### Soft Start Features ( Opt. )



Variable Voltage Constant Frequency (VVCF)



Variable Voltage Variable Frequency (VVVF)

Soft-start function can effectively reduce the starting current of motor load or inductive load. The users have more flexibility on selection of power capacity and more efficiency on space usage. They can purchase more cost-effective products.

### Three Phase Independent Control (Opt.)

Users are allowed to control three-phase output voltage independently. The product can be used as one unit of three-phase power supply or as three units of single-phase power supply.

### Wide Variety of Applications



With its high reliability, capability of complex power line simulation and high output power, the AFV series has been widely applied for applications on home appliance, electric vehicle charger, motor, electronics and medical equipment. It is a AC power source suitable from R&D verification to mass production testing.

## SPECIFICATIONS

### AFV Series Single-Phase Output (10kVA - 120kVA)

Model	AFV-31010	AFV-31015	AFV-31030	AFV-31045	AFV-31060	AFV-31080	AFV-31100	AFV-31120
<b>INPUT</b>								
Phase	3Ø / 4 Wire + G							
Voltage <sup>*1</sup>	220/380Vac ±15% (option:120/208Vac,277/480Vac,200Vac or 400Vac)							
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz							
Max. Current <sup>*2</sup>	18.7A	28.1A	56.1A	84.2A	112.2A	150A	209.7A	251.7A
Power Factor	≥ 0.9 ( Max. Power )						≥ 0.85 ( Max. Power )	
<b>OUTPUT</b>								
Power	10kVA	15kVA	30kVA	45kVA	60kVA	80kVA	100kVA	120kVA
Phase	1Ø / 2 Wire + G							
Voltage Ranges	Low(V) 0V-150.0V ( L-N )							
	High(V) 0V-300.0V ( L-N )							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+ 4 counts							
Frequency Range <sup>*3</sup>	Standard : 45 ~ 65Hz Option : 45 ~ 500Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	0.5% F.S.+ 4 counts							
Max. Current (RMS)	83.3A	125A	250A	375A	500A	666.7A	833.3A	1000A
	41.7A	62.5A	125A	187.5A	250A	333.3A	416.7A	500A
Line Regulation	≤ 1%							
Load Regulation	≤ 1% ( Resistive Load )							
Total Harmonic Distortion (THD) <sup>*4</sup>	≤ 2% ( Resistive Load )							
Response Time	≤ 2ms							
<b>MEASUREMENT</b>								
Voltage Range	0V-300.0V							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+ 4 counts							
Frequency Range	45.0-500.0Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	0.5% F.S.+4 counts							
Current Range (RMS)	0 - 83.3A	0 - 125A	0 - 250A	0 - 375A	0 - 500A	0 - 666.7A	0 - 833.3A	0 - 1000A
Current Resolution (RMS)	0.1A							
Current Accuracy (RMS)	0.5% F.S.+4 counts							
Power Range	0 - 10kW	0 - 15kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 80kW	0 - 100kW	0 - 120kW
Power Resolution	0.1kW							
Power Accuracy	1% F.S.+6 counts							
<b>GENERAL</b>								
Efficiency	≥90% at Max. Power						≥85% at Max. Power	
HMI	Touch Screen , 7" Color TFT LCD							
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) GRADUAL : 12 sets / 255 cycles. (Volt./Freq./Time)							
Protection	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature							
Remote Interface	Standard : RS-485/RS-422/RS-232 Option : GPIB, Ethernet							
Operational Temperature	0°C~45°C							
Humidity	0~90% ( Non condensing )							
Altitude	< 1,500m							
Dimensions (H x W x D) <sup>*5</sup>	1045 x 600 x 840 mm	1440 x 600 x 840 mm	1645 x 800 x 840 mm	1800 x 1050 x 970 mm	1900 x 1150 x 1240 mm			
	41.1 x 23.6 x 33.1lbs	56.7 x 23.6 x 33.1lbs	64.8 x 31.5 x 33.1lbs	70.9 x 41.3 x 38.2lbs	74.8 x 45.3 x 48.8lbs			
Weight <sup>*5</sup>	230kg	280kg	450kg	580kg	670kg	750kg	940kg	1100kg
	507.2lbs	617.4lbs	992.3lbs	1278.9lbs	1477.4lbs	1653.8lbs	2072.7lbs	2425.5lbs

\*1 200V and 400V input options are 3Ø / 3 Wire + G. Please contact us for other input voltage specifications. \*2 The max. current is based on rated input voltage of 220/380V.

\*3 For 45-500Hz option, please contact us for output power characteristic curve. \*4 When the output voltage is at Low : 90 - 140V or High 180 - 280V with load power factor of 1.

\*5 Dimensions and weight are for input voltage 220/380V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

## AFV Series Three-Phase Output (10kVA - 120kVA)

Model	AFV-33010	AFV-33015	AFV-33030	AFV-33045	AFV-33060	AFV-33080	AFV-33100	AFV-33120	
<b>INPUT</b>									
Phase	3Ø / 4 Wire + G (option: 3Ø / 3 Wire + G)								
Voltage <sup>*1</sup>	220/380Vac ±15% (option : 120/208Vac, 277/480Vac,240Vac,200Vac or 400Vac)								
Frequency	50Hz±3Hz or 60Hz±3Hz								
Max. Current <sup>*2</sup>	18.7A	28.1A	56.1A	84.2A	112.2A	150A	209.7A	251.7A	
Power Factor	≥ 0.9 ( Max. Power )					≥0.85 ( Max. Power )			
<b>OUTPUT</b>									
Power (VA)	10kVA	15kVA	30kVA	45kVA	60kVA	80kVA	100kVA	120kVA	
Phase	3Ø / 4 Wire + G								
Voltage Ranges	Low(V) 0V-150.0V ( L-N )								
	High(V) 0V-300.0V ( L-N )								
Voltage Resolution	0.1V								
Voltage Accuracy	0.5% F.S.+4 counts								
Frequency Range <sup>*3</sup>	Standard : 45~65Hz Option : 45-500Hz								
Frequency Resolution	0.1Hz								
Frequency Accuracy	0.5% F.S.+4counts								
Max. Current (RMS)	Low(A)	27.8A	41.7A	83.3A	125A	166.7A	222.2A	277.8A	333.3A
	High(A)	13.9A	20.8A	41.7A	62.5A	83.3A	111.1A	138.9A	166.7A
Line Regulation	≤ 1%								
Load Regulation	≤ 1% ( Resistive Load )								
Total Harmonic Distortion(THD) <sup>*4</sup>	≤ 2% ( Resistive Load )								
Response Time	≤ 2ms								
<b>MEASUREMENT</b>									
Voltage Range	0V-300.0V								
Voltage Resolution	0.1V								
Voltage Accuracy	0.5% F.S.+4 counts								
Frequency Range	45.0-500.0Hz								
Frequency Resolution	0.1Hz								
Frequency Accuracy	0.5% F.S.+4 counts								
Current Range(RMS)	0 - 27.8A	0 - 41.7A	0 - 83.3A	0 - 125A	0 - 166.7A	0 - 222.2A	0 - 277.8A	0 - 333.3A	
Current Resolution(RMS)	0.1A								
Current Accuracy(RMS)	0.5% F.S.+4 counts								
Power Range	0 - 10kW	0 - 15kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 80kW	0 - 100kW	0 - 120kW	
Power Resolution	0.1kW								
Power Accuracy	1% F.S.+6 counts								
<b>GENERAL</b>									
Efficiency	≥90% at Max. Power					≥0.85 at Max. Power			
HMI	Touch Screen , 7" Color TFT LCD								
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) GRADUAL : 12 sets / 255 cycles. (Volt./Freq./Time)								
Protection	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature								
Remote Interface	Standard : RS-485/RS-422/RS-232 Option : GPIB, Ethernet								
Operational Temperature	0°C~45°C								
Humidity	0~90% ( Non condensing )								
Altitude	< 1,500m								
Dimensions (H x W x D) <sup>*5</sup>	1045 x 600 x 840 mm	1440 x 600 x 840 mm		1645 x 800 x 840 mm		1800 x 1050 x 970 mm		1900 x 1150 x 1240 mm	
	41.1 x 23.6 x 33.1lbs	56.7 x 23.6 x 33.1lbs		64.8 x 31.5 x 33.1lbs		70.9 x 41.3 x 38.2lbs		74.8 x 45.3 x 48.8lbs	
Weight <sup>*5</sup>	280kg	305kg	400kg	560kg	670kg	1000kg	1170kg	1450kg	
	617.4lbs	672.53lbs	882lbs	1234.8lbs	1477.4lbs	2205lbs	2579.85lbs	3197.3lbs	

\*1 200V and 400V input options are 3Ø / 3 Wire + G. Please contact us for other input voltage specifications. \*2 The max. current is based on rated input voltage of 220/380V.

\*3 For 45~500Hz option, please contact us for output power characteristic curve. \*4 When the output voltage is at Low : 90 - 140V or High 180 - 280V with load power factor of 1.

\*5 Dimensions and weight are for input voltage 220/380V(3Ø/4W+G). Please contact us for dimensions and weight for other input voltage. For AFV+ series over 400kVA, please contact us for details.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

### AFV Series Three-Phase Output (160kVA - 1600kVA)

Model	AFV-33160	AFV-33240	AFV-33300	AFV-33400	AFV-33500	AFV-33640	AFV-33800	AFV-331000	AFV-331200	AFV-331600	
<b>INPUT</b>											
Phase	3Ø / 4 Wire + G (option: 3Ø / 3 Wire + G)										
Voltage* <sup>1</sup>	220/380Vac ±15% (option : 277/480Vac, 240Vac or 400Vac)										
Frequency	50Hz±3Hz or 60Hz±3Hz										
Max. Current* <sup>2</sup>	336A	504A	629.1A	838.8A	1048.5A	1343A	1677.7A	2097.1A	2516.5A	3356A	
Power Factor											
<b>OUTPUT</b>											
Power (VA)	160kVA	240kVA	300kVA	400kVA	500kVA	640kVA	800kVA	1000kVA	1200kVA	1600kVA	
Phase	3Ø / 4 Wire + G										
Voltage Ranges	Low(V)	0V-150.0V ( L-N )									
	High(V)	0V-300.0V ( L-N )									
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range* <sup>3</sup>	Standard : 45~65Hz Option : 45-500Hz										
Frequency Resolution	0.1Hz										
Frequency Accuracy	0.5% F.S.+4 counts										
Max. Current (RMS)	Low(A)	444.4A	666.7A	833.3A	1111.1A	1388.9A	1777.8A	2222.2A	2777.8A	3333.3A	4444.4A
	High(A)	222.2A	333.3A	416.7A	555.6A	694.4A	888.9A	1111.1A	1388.9A	1666.7A	2222.2A
Line Regulation	≤ 1%										
Load Regulation	≤ 1% ( Resistive Load )										
Total Harmonic Distortion(THD)* <sup>4</sup>	≤ 2% ( Resistive Load )										
Response Time	≤ 2ms										
<b>MEASUREMENT</b>											
Voltage Range	0V-300.0V										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range	45.0-500.0Hz										
Frequency Resolution	0.1Hz										
Frequency Accuracy	0.5% F.S.+4 counts										
Current Range (RMS)	0 - 444.4A	0 - 666.7A	0 - 833.3A	0 - 1111.1A	0 - 1388.9A	0 - 1777.8A	0 - 2222.2A	0 - 2777.8A	0 - 3333.3A	0 - 4444.4A	
Current Resolution (RMS)	0.1A										
Current Accuracy (RMS)	0.5% F.S.+4 counts										
Power Range	0-160kW	0-240kW	0 - 300kW	0 - 400kW	0 - 500kW	0 - 640kW	0 - 800kW	0 - 1000kW	0 - 1200kW	0 - 1600kW	
Power Resolution	0.1kW										
Power Accuracy	1% F.S.+6 counts										
<b>GENERAL</b>											
Efficiency	≥ 0.85 at Max. Power										
HMI	Touch Screen , 7" Color TFT LCD										
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) GRADUAL : 12 sets / 255 cycles. (Volt./Freq./Time)										
Protection	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature.										
Remote Interface	Standard : RS-485/RS-422/RS-232 Option : GPIB, Ethernet										
Operational Temperature	0°C~45°C										
Humidity	0~90% ( Non condensing )										
Altitude	< 1,500m										
Dimensions (H x W x D)* <sup>5</sup>	1900 x 1150 x 1240 mm		2050 x 3880 x 1539 mm			2050 x 4716 x 1520 mm		2050 x 6003 x 1520 mm	2200 x 10827 x 1590 mm		
	74.8 x 45.3 x 48.8lbs		80.7 x 152.8 x 60.6lbs			80.7 x 185.7 x 59.8lbs		80.7 x 236.3 x 59.8lbs	86.6 x 426.3 x 62.6lbs		
Weight* <sup>5</sup>	1850kg	2800kg	3450kg	4450kg	5550kg	7800kg	8800kg	10550kg	16000kg	17600kg	
	4079.3lbs	6174lbs	7607.3lbs	9812.3lbs	12237.8lbs	17199lbs	19404lbs	23262.8lbs	35280lbs	38808lbs	

\*1 200V and 400V input options are 3Ø / 3 Wire + G. Please contact us for other input voltage specifications. \*2 The max. current is based on rated input voltage of 220/380V.

\*3 For 45-500Hz option, please contact us for output power characteristic curve. \*4 When the output voltage is at Low : 90 - 140V or High 180 - 280V with load power factor of 1.

\*5 Dimensions and weight are for input voltage 220/380V(3Ø/4W+G) . Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## ORDERING INFORMATION :

## AFV Series Single-Phase Output (10kVA - 150kVA)

Model Number	Description
AFV-31010	High Power Programmable AC Power Source (10kVA/300V/45-65Hz)
AFV-31015	High Power Programmable AC Power Source (15kVA/300V/45-65Hz)
AFV-31030	High Power Programmable AC Power Source (30kVA/300V/45-65Hz)
AFV-31045	High Power Programmable AC Power Source(45kVA/300V/45-65Hz)
AFV-31060	High Power Programmable AC Power Source(60kVA/300V/45-65Hz)
AFV-31080	High Power Programmable AC Power Source(80kVA/300V/45-65Hz)
AFV-31100	High Power Programmable AC Power Source(100kVA/300V/45-65Hz)
AFV-31120	High Power Programmable AC Power Source (120kVA/300V/45-65Hz)
AFV-001	Output Frequency 45Hz-500Hz
AFV-002	Soft Start Mode
AFV-005	GPIB Interface
AFV-006	Ethernet Interface
AFV-007	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec

## AFV Series Three-Phase Output (10kVA - 2000kVA)

Model Number	Description
AFV-33010	High Power Programmable AC Power Source (three-Phase Input) (10kVA/300V/45-65Hz)
AFV-33015	High Power Programmable AC Power Source (three-Phase Input) (15kVA/300V/45-65Hz)
AFV-33030	High Power Programmable AC Power Source (three-Phase Input) (30kVA/300V/45-65Hz)
AFV-33045	High Power Programmable AC Power Source (three-Phase Input) (45kVA/300V/45-65Hz)
AFV-33060	High Power Programmable AC Power Source (three-Phase Input) (60kVA/300V/45-65Hz)
AFV-33080	High Power Programmable AC Power Source (three-Phase Input) (80kVA/300V/45-65Hz)
AFV-33100	High Power Programmable AC Power Source (three-Phase Input) (100kVA/300V/45-65Hz)
AFV-33120	High Power Programmable AC Power Source (three-Phase Input) (120kVA/300V/45-65Hz)
AFV-33160	High Power Programmable AC Power Source (three-Phase Input) (160kVA/300V/45-65Hz)
AFV-33240	High Power Programmable AC Power Source (three-Phase Input) (240kVA/300V/45-65Hz)
AFV-33300	High Power Programmable AC Power Source (three-Phase Input) (300kVA/300V/45-65Hz)
AFV-33400	High Power Programmable AC Power Source (three-Phase Input) (400kVA/300V/45-65Hz)
AFV-33500	High Power Programmable AC Power Source (three-Phase Input) (500kVA/300V/45-65Hz)
AFV-33640	High Power Programmable AC Power Source (three-Phase Input) (640kVA/300V/45-65Hz)
AFV-33800	High Power Programmable AC Power Source (three-Phase Input) (800kVA/300V/45-65Hz)
AFV-331000	High Power Programmable AC Power Source (three-Phase Input) (1000kVA/300V/45-65Hz)
AFV-331200	High Power Programmable AC Power Source (three-Phase Input) (1200kVA/300V/45-65Hz)
AFV-331600	High Power Programmable AC Power Source (three-Phase Input) (1600kVA/300V/45-65Hz)
AFV-001	Output Frequency 45Hz-500Hz
AFV-002	Soft Start Mode
AFV-003	Three Phase Independent Adjustment
AFV-004	Three Phase Angle Adjustment
AFV-005	GPIB Interface
AFV-006	Ethernet Interface
AFV-007	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec